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ABSTRACT

The general objectives of the study were to determine whether one can motivate users of health personnel, such as hospitals, to modify their hiring-in-requirements to the actual needs of the job, to restructure health occupational skills, and to develop inservice training programs which permit upward job mobility. Five hospitals, representing a variety of types, cooperated in the study. The research design included a primary care questionnaire, visits to the hospitals, analysis of standards, interviews, and recommendations. Data is tabulated and findings summarized. The summaries reinforce earlier findings in that the more skilled professional (i.e., the RN and LPN) spends large amounts of time on tasks which require very little skill, while persons in entry-level occupations in fact perform some of the more sophisticated functions. Research findings related to marginal medical functions and health manpower employment are discussed, the progress of the general work of the Center for Medical Manpower Studies reported on, and future plans presented. The appendix includes letters, a description of the five participating hospitals, and a reprinted article on the duties of the nurse practitioner. (MW)

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IMPROVING THE UTILIZATION OF HEALTH MANPOWER

by

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16. Abstracts: This report represents our progress for the first two years of a three-year project to implement the techniques and methodology of our previous project, Restructuring Paramedical Occupations (RPO), in five hospitals, each quite different in characteristics from each other. One of our efforts will attempt to determine the universality of the RPO technique and methodology.

The general objectives of this study are to determine whether one can motivate users of health personnel, such as hospitals, to modify their hiring-in requirements to the actual needs of the job, to restructure health occupational skills, and to develop in-service training programs which permit upward job mobility.

Further, this report includes a summary of the activities of the newly-created Center for Medical Manpower Studies (CMMS). The progress of a sub-study of health manpower in the Boston area (1968-1973) is also discussed.

This report contains a statement of the problem, objectives, research design, progress since July 1972, preliminary observations, activities outside the Boston area and analysis of requests for the RPO study.

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I. BACKGROUND

A. Hiring Standards for Paramedical Manpower

The initial study of allied health manpower by the Department of Economics of Northeastern University was undertaken as the result of a grant from the Manpower Administration of the U.S. Department of Labor in 1967. The research project, entitled Hiring Standards for Paramedical Manpower, was a study of twenty hospitals in the Boston Area, and was completed in September 1968. The chief objectives of the study were to explore the duties performed and the skills used by employees in selected paramedical occupations, and to compare for each occupation the actual functions performed on the job with the hiring-in standards of education, training and work experience.

This pilot study found that the manpower shortages in many of the paramedical occupations were persisting, in part, because of arbitrary licensing, unnecessarily high educational and training prerequisites, and inefficient utilization of the available allied health personnel. In addition, health-related jobs were frequently so structured that there were few opportunities for upgrading and promotion, thereby providing little incentive to potential employees to enter the industry. On the basis of these findings, several recommendations on hospital administration were made concerning restructuring of allied health occupations, relevant hiring-in standards, occupational career ladders, and quality control mechanisms.

B. Restructuring Paramedical Occupations

On the basis of that pilot research, the Manpower Administration granted the authors funds for further research in this field. A new research and demonstration project, entitled Restructuring Paramedical Occupations (RPO), was conducted from June 1969 through January 1972. Its basic objectives were to study the hiring-in standards and functions of allied health personnel within a single hospital and to recommend improvements in the utilization of manpower in that hospital. The occupations included in this project were: registered nurse, licensed practical nurse, nurses' aide, orderly, ward secretary, surgical

technician, psychiatric attendant, x-ray technician, EKG technician, inhalation therapy technician, neighborhood health worker, laboratory technician, and administrative and supervisory personnel. The hospital selected for study was The Cambridge Hospital, a municipal hospital in Cambridge, Massachusetts.

The research staff conducted in-depth interviews with 179 allied health personnel (representing 87.7 per cent of all such personnel) and spent over 300 hours observing at least 75 of these people on the job in order to verify the in-depth interviews. Based on the interviews and observations, detailed job descriptions, including specific job functions, were compiled for each occupation. An analysis was then made of the efficiency of the existing allocation of specific job functions, and the utilization of manpower.

In December 1970, several specific recommendations were made to The Cambridge Hospital. The principal recommendations suggested the need for a hospital personnel department apart from the Civil Service Commission of the City of Cambridge, an organizational chart, the establishment of three new allied health occupations (nursing assistant, medical assistant, physicians' assistant) to which a nurses' aide could advance through in-service training, and in-service training programs to facilitate vertical mobility. We also recommended the restructuring of certain occupations (registered nurse, licensed practical nurse, and nurses' aide), the elimination of the job category of orderly, and a reorganization of the laboratory to encourage contract laboratory work for neighboring hospitals. By September 1971, when the field work of the project was completed, the Hospital had already taken steps to implement these and several related recommendations. The additional recommendations included the removal of some entry-level requirements for certain occupations; the reassignment of some of the "easy" functions performed by RN's to nurses' aides; the establishment of continuing education programs in radiology, inhalation therapy, and EKG techniques; the development of an occupational ladder training program for the new allied health occupations mentioned earlier; the establishment of

additional neighborhood health centers; and the hiring of more neighborhood health workers.

The recommended changes for The Cambridge Hospital were accepted with keen interest and cooperation by the hospital administration and staff. Although our presence at the hospital provided some motivating force for the acceptance of changes and reorganization, the Commissioner of Health, the medical staff, and the nursing and administrative personnel must be credited with the progress made.

Over the three-year period, hospital utilization and costs at The Cambridge Hospital changed as follows:

1. A 19.7 per cent increase in bed complement;
2. A 38 per cent increase in in-patient days;
3. A reduction of the average length of stay from 9.6 to 9.3 days;
4. A 34 per cent increase in out-patient clinic visits;
5. A reduction of the hospital's loss as a per cent of expenses from 23.0 per cent to 4.3 per cent.

II. CURRENT WORK IN MEDICAL MANPOWER

The completion of The Cambridge Hospital study in January 1972 indicated that it was possible for a hospital to institute numerous changes that could improve the utilization of its allied health manpower. However, The Cambridge Hospital is a modest size city hospital with certain specific characteristics. Can the process be repeated in numerous hospitals across the nation?

A follow-up research project entitled, Improving the Utilization of Health Manpower, was proposed and approved in June 1972 by the Office of Research and Development (ORD), Manpower Administration, U.S. Department of Labor, to determine whether the same techniques could be utilized in a variety of different hospitals, principally in the Boston area. If the techniques are successful in a variety of hospitals, it is more likely that hospitals throughout the United States would be convinced of the value of the technique and might be willing to institute the necessary changes to improve the utilization of allied health manpower. In July 1972, we began this extension of our previous research project.

The following year, at the suggestion of the staff of ORD, the Department of Economics of Northeastern University established The Center for Medical Manpower Studies, to help disseminate and utilize our own research and findings, as well as those of others in the health manpower field. Also, we began to investigate on a small scale what kind of shortage of health personnel there is, as measured by changes in health personnel employment over a five-year period (1968 to 1973). At present we are involved in all three of these activities.

A. Allied Health Manpower

Historically a number of the traditional allied health occupations have been treated as dead-end jobs, and the utilization of health skills in hospitals has generally been inefficient and ineffective. The problems of the delivery and costs of health care

are many; one critical factor is the apparent manpower shortage in some health occupations and ineffective utilization of qualified health personnel in other occupations. Low wages, licensing requirements, educational requirements, vested interests, the absence of in-service training and upgrading programs, and many other matters have had some impact on the health manpower problem. Despite the nation's significant unemployment rates, especially among youths of minority groups, there apparently still is a strong unfilled need for persons in health occupations. The basic problem is whether the demand side of the labor market for allied health skills can be changed so that arbitrary and unnecessary entrance requirements are dropped, more effective utilization of skills is made, and in-service training and upgrading programs are developed to permit considerably more upward job mobility and better utilization of manpower.

For numerous reasons many persons, especially from minority groups, lack the education, training, or entrance requirements set for various health occupations. Our findings in The Cambridge Hospital indicate that these requirements are unnecessarily high, and that The Cambridge Hospital was willing to and did change some requirements. The current research is attempting to discover whether other hospitals are prepared to make similar changes. In addition, we will attempt to discover whether the effects of the changes on the employment and manpower situation have been significant.

B. Objectives

The general objectives of this project are to determine whether one can motivate employers of allied health personnel, such as hospitals, to modify their hiring-in requirements to the actual needs of the job, to restructure health occupational skills, and to develop in-service training programs which permit upward job mobility. To attain these objectives, the researchers are undertaking the following:

(a) To act as a change agent in hospitals, using the RPO study as a basis for recommendations.

(b) To develop a list of "marginal medical functions" which could be performed by lesser trained personnel.

(c) To follow up on the contacts made with the cooperating facilities and to continue to act as an agent of change within these facilities.

(d) To pursue contacts made with the American Hospital Association (AHA) and others to participate in workshops for hospital administrators and others to explain restructuring.

C. Research Design

As participant observers and change agents the researchers are involved in the following: (1) regular visits to the hospitals included in the project; (2) analysis of the hiring standards and occupational structure; (3) making recommendations for changes in standards and structure with the overall aim of creating job opportunity ladders and increasing hospital efficiency; (4) the study and analysis of the forces that act and react on the recommended changes; and (5) the study and analysis of the long-run effects on the utilization of manpower of any of the changes instituted by the hospitals.

Unstructured interviews are being conducted regularly with the various administrators, the representatives of the various professional and union groups involved, as well as with a sample of the occupations involved. In addition, all data on hires, quits, lay-offs, wage rates, job descriptions, job functions, and manpower utilization are being collected and analyzed.

The questionnaires of our previous study, Restructuring Paramedical Occupations, have been somewhat revised and updated, and are now being used in this study. In addition, several new questionnaires have been compiled for occupations previously not interviewed. Whenever possible we have attempted to use the same questionnaires for as many occupations as possible so that any overlap in the performance of functions can more readily be discovered. Questionnaires have been devised to cover the following nine groups:

Questionnaires

1. General Nursing Service
   a. Registered Nurse
   b. Licensed Practical Nurse
   c. Nurses' Aide
   d. Orderly
   e. Nursing Assistant
2. Psychiatry Department
   a. Registered Nurse
   b. Psychiatric Attendant
3. Operating Room
   a. Registered Nurse
   b. Licensed Practical Nurse
   c. Surgical Technician
   d. Operating Room Orderlies
4. Clerical Duties
   a. Ward Secretary
   b. Unit Clerk
   c. Unit Secretary
   d. Unit Aide
5. Inhalation Therapy Department
   a. Inhalation Technologist
   b. Inhalation Technician
6. X-ray Department
   a. X-ray Technologist
   b. X-ray Technician
7. Laboratory
   a. Hematology Technologist
   b. Hematology Technician
   c. Blood bank Technologist
   d. Blood bank Technician
   e. Bacteriology Technologist
   f. Bacteriology Technician
   g. Cytology Technologist
   h. Cytology Technician
   i. Histology Technologist
   j. Histology Technician
   k. Urinalysis and Parasitology Technologist
   l. Urinalysis and Parasitology Technician
   m. Chemistry Technologist
   n. Chemistry Technician
8. EKG Technician
9. Primary Care
   a. Senior Medical Staff
   b. Resident
   c. Intern
   d. Physicians' Assistant
   e. Registered Nurse

We have studied the programs of training for physicians' assistants at Duke University, the University of Washington, and Northeastern University. Since we plan to compare the functions of chiefs of services, interns, residents, pediatric nurse practitioners, nurse practitioners, registered nurses, physicians' assistants and licensed practical nurses the development of a common questionnaire was necessary. We therefore devised a list of marginal medical functions in a single questionnaire for these classifications, and refer to the document as our primary care questionnaire. Marginal medical functions are defined as those functions which have been

traditionally performed by physicians but which we believe can be performed by other health personnel with some additional training.

To succeed in our objective of improving the utilization of health manpower, we must attempt to determine marginal medical functions now performed by the physician which could be performed as well by others. This will be investigated principally at one hospital where the physician in charge specifically asked that we closely examine functions of all medical and allied health personnel, including physicinas in charge, chiefs of service, residents, interns, physicians' assistants, registered nurses, and down the line to aides and orderlies.

D. Preliminary Work on the Project

At the start of this research project we revisited The Cambridge Hospital a number of times to renew our relationships and to confirm the Hospital's willingness to cooperate in our continued research project. We also made a series of initial contacts with administrators in nine Boston area hospitals where we had previously held some conversations about our earlier project.

We quickly realized that each contact would take considerable time and that negotiations on cooperation in our research could extend over a long period. We therefore decided to make an initial contact by mail with many other hospitals. In mid-August 1972 copies of "Paramedical Manpower: A Restructuring of Occupations" (a summary of the final report of The Cambridge Hospital study) were sent to the administrators of fifty-seven hospitals in the Boston metropolitan area. In a cover letter we encouraged the administrators of these hospitals to discuss the study with us in the hope that a number might be convinced to cooperate in our current project.[1] Over a twelve-month period only one

1. See Appendix A for a copy of the letter which accompanied material.

administrator contacted us as a result of our initial mailing.

During this twelve-month period we had telephoned four of the 57 hospitals, in an attempt to enlist their support and interest. The administrators found it quite simple to refuse any involvement during the telephone contact. We found that introducing new concepts on improved methods of health care delivery is difficult to accomplish under any circumstances, but particularly difficult through written reports. Since we spent six months arranging for the cooperation of The Cambridge Hospital in our pilot study, the lack of response to our letter came as no surprise.

Meetings were held with the hospital administrator in each of the nine hospitals where earlier contacts had been made. In some instances, chiefs of medicine, chiefs of nursing, and boards of trustees were also contacted. At these meetings we attempted to describe the aims of the project and to explain its continuing relationship to the previous studies of health manpower, especially the most recent study involving The Cambridge Hospital. We indicated that every effort would be made by the investigating team to adapt its activities to the unique situation found at each participating hospital and that we hoped to develop techniques so that our findings could be useful to a large segment of hospitals across the country.

These nine hospitals include one large, short-term, non-profit private hospital; two large, short-term, non-profit hospitals; five small, short-term, non-profit private hospitals; and one large, long-term,non-profit private hospital. Several of these hospitals are teaching hospitals with more than one medical school involved in a single hospital. Five hospitals have made firm commitments to participate in the project, while the other four have refused cooperation.

Some of the official reasons given by the four hospitals for declining to participate were: the director of nursing had just

resigned; the hospital was involved in a building program; and the hospital was in the throes of its accreditation. However, it would seem from our conversations with administrator representatives in these hospitals that the refusal to cooperate was more likely due to fears that the project would upset the status quo.

A typical example of a turndown came from a 200-bed community hospital. During our presentation to members of the hospital medical staff, several physicians voiced strong objection to the project. Their stated reasons were: "You people will make your recommendations to the Federal Government, and before long it will be published under Federal auspices and soon become the law of the land."

Several physicians on the staff of this hospital were also on the staff of a larger hospital that earlier committed itself to our project. These physicians did most of their work at the larger hospital. As a result there was a certain displeasure with these physicians by those who practiced mainly at the smaller community hospital. The fact that the physicians practicing at both hospitals supported our project was resented by the other physicians, who later voted down the motion to participate in the project.

Our initial contacts with the nine hospitals raised a number of problems, such as the following:

1. Which hospital staff members are to participate in the interview-observation process, i.e., should the medical staff be included with the allied health staff;
2. What role a union might play in participating and assisting with such a study, or even whether such a research study might be conducive in bringing unionization to a hospital;
3. The confidentiality of our interviews and the privacy of certain information retained by the hospitals, i.e., the reluctance to release salary information except under certain prescribed circumstances;
4. Anxiety by hospital administrators concerning the possible disruption of normally smooth working relationships, by the probing and questioning of staff by the interviewers.

In all cases we indicated our willingness to work closely with each

hospital administrator, and with chiefs of medicine, heads of staff and unit supervisors, and to plan our activities in a fashion aimed at anticipating and avoiding problem areas.

In most instances, hospital administrators have had to make formal presentation of our request to the hospitals' board of directors and/or medical staff, and this usually involved a series of somewhat complicated time-consuming procedures.

E. Hospitals Included in Study

By January 1973, five hospitals had completed all internal formalities and officially agreed to participate in our on-going project. Each of the five hospitals is described in Appendix B. For the present, fictitious names are used. The numerical key of the American Hospital Association 1972 Guide is used to describe each facility.

The five cooperating hospitals represent a variety of types to test the findings of the Cambridge Study in various hospitals with differing organizations and needs. The five hospitals can be briefly described as follows:

1. Elektra: a general, 200 bed, short-term municipal teaching hospital serving a large, low and lower-middle income, urban population.
2. Bacchus: a short-term private, general non-profit, teaching hospital with 350 beds. It serves an upper and middle income urban population.
3. Desdemona: a private short-term non-profit hospital of 60 beds serving a lower income urban population.
4. Adonis: a large, short-term municipal teaching hospital (pediatrics department only) serving low-income residents of the inner city.
5. Cressyda: a large, short-term private, non-profit hospital of 350 beds serving a rural population of varied incomes.

F. Progress in the Research

1. Research on Restructuring Health Occupations in Five Hospitals

The collection of basic data has been completed. Approximately 275 interviews have been conducted with employees in various

health occupations in the five cooperating hospitals. These data have been tabulated and several summary tables have been prepared. The four traditionally structured hospitals, Adonis, Bacchus, Desdemona, and Elektra, demonstrate, in varying degrees, that in the functions performed, significant overlap exists among various health professions, regardless of training or educational level.

These summaries reinforce the findings of the RPO study, in that the more skilled professional (i.e. the RN and LPN) spends large amounts of time on tasks which require very little skill, while persons in entry-level occupations in fact perform some of the more sophisticated functions. Table 1 shows for these four hospitals the average percent of time spent on five groups of functions by three nursing occupations. The functions are ranked in order of difficulty: Group 1 functions (1-18) are generally considered less sophisticated than Group2, and Group 3 functions more sophisticated than Group 2. Group 4 functions are administrative functions and Group 5 functions are in the pediatric area.

Data for these four hospitals are combined on Table 2. Columns (1) of Table 2 (and also of Tables 3 and 4) show the percentage of those in an occupational classification who at any time performed the functions within that particular group of functions. The data in Columns (2) are identical to the data presented in Table 1, that is, the percentages represent the average percent of time spent on each of the five groups of functions by the occupation. On the average, a large percentage of RN's (71.3%, LPN's (83.7%) and NA's (79.4%) spent a substantial percentage of their time on Group 1 functions. At the same time on the average a large percentage of RN's (76.1%),LPN's (77.5%) and NA's (49.2%) spend a substantial percentage of time on the more sophisticated Group 3 functions.

Table No. 1. Average Percent of Time Spent on Five Groups of Functions at Four Individual Hospitals by Registered Nurses, Licensed Practical Nurses, Nurses' Aides

ADONIS

Groups of Functions Ranked From Easiest to Most Difficult	RN	LPN	NA
General Nursing			
Group 1 (1-18)	25.3	20.5	54.7
Group 2 (19-30)	25.6	32.1	26.8
Group 3 (31-47)	25.7	19.7	14.9
Group 4 (48-63)	23.3	25.7	2.5
Group 5 (64-69)	.06	2.0	1.0

BACCHUS

	RN	LPN	NA
General Nursing			
Group 1 (1-18)	26.0	30.5	51.8
Group 2 (19-30)	21.1	37.0	32.1
Group 3 (31-47)	22.6	20.8	8.2
Group 4 (48-63)	20.1	10.6	5.8
Group 5 (64-69)	10.1	1.0	2.1

DESDEMONA

	RN	LPN	NA
General Nursing			
Group 1 (1-18)	25.6	44.1	48.5
Group 2 (19-30)	26.0	30.8	36.9
Group 3 (31-47)	39.4	14.1	10.4
Group 4 (48-63)	7.6	9.6	3.0
Group 5 (64-69)	1.3	1.4	1.0

ELEKTRA

	RN	LPN	NA
General Nursing			
Group 1 (1-18)	34.3	21.3	49.1
Group 2 (19-30)	21.8	21.6	27.8
Group 3 (31-47)	23.8	20.8	9.3
Group 4 (48-63)	18.0	8.4	8.0
Group 5 (64-69)	2.1	27.9	5.7

Table No. 2. Average Percent of Performers (1) and Average Percent of Time (2) Spent on Five Groups of Functions at Four Hospitals by Registered Nurses, Licensed Practical Nurses, Nurses' Aides

(ADONIS, BACCHUS, DESDEMONA, ELEKTRA)

Groups of Functions Ranked From Easiest to Most Difficult	RN		LPN		Nurses' Aide	
General Nursing	(1)	(2)	(1)	(2)	(1)	(2)
Group 1 (1-18)	71.3	27.5	83.7	29.6	79.4	53.2
Group 2 (19-30)	82.4	23.7	87.9	30.1	70.2	28.8
Group 3 (31-47)	76.1	26.2	77.5	19.4	49.2	12.0
Group 4 (48-63)	68.4	19.4	56.6	12.7	32.2	3.9
Group 5 (64-69)	25.7	3.2	62.5	8.1	33.4	2.0

Table No. 3. Average Percent of Performers (1) and Average Percent of Time Spent (2) on Five Groups of Functions at Hospital by Registered Nurses, Licensed Practical Nurses, and Nurses' Aides

CRESSYDA

Groups of Functions Ranked From Easiest to Most Difficult	RN		LPN		Nurses' Aide	
General Nursing	(1)	(2)	(1)	(2)	(1)	(2)
Group 1 (1-18)	80.0	20.5	90.0	31.1	93.0	45.7
Group 2 (19-30)	84.0	16.0	86.6	29.7	74.2	33.8
Group 3 (31-47)	86.0	25.2	83.2	22.1	54.6	11.8
Group 4 (48-63)	88.0	38.3	80.0	16.1	31.3	7.8
Group 5 (64-69)	20.0	.06	66.6	.9	4.2	.8

Table No. 4. Average Percent of Performers (1) and Average Percent of Time Spent (2) on Five Groups of Functions at Hospital by Four Categories of Nursing Assistants

CRESSYDA

Groups of Functions Ranked From Easiest to Most Difficult	Sr. Nursing Technician		Nursing Technician		Sr. Nursing Assistant		Nursing Assistant	
General Nursing	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Group 1 (1-18)	94.0	42.5	95.0	44.9	93.2	48.8	90.0	49.5
Group 2 (19-30)	96.0	38.5	93.7	34.3	89.9	31.5	68.7	30.0
Group 3 (31-47)	64.0	12.6	65.0	10.8	56.6	10.0	46.2	12.1
Group 4 (48-63)	40.0	6.4	40.0	7.4	56.6	9.7	43.7	8.4
Group 5 (64-69)	--	--	12.5	2.0	--	--	--	--

The Cressyda Hospital is a fairly large, private, non-profit hospital located approximately 300 miles from Boston in a rural, sparsely populated area. For a number of years this hospital has conducted an in-service training program providing upgrading opportunities for its allied health personnel. It currently has in-service training programs for 1) Nursing Assistants 2) Senior Nursing Assistants 3) Nursing Technicians 4) Senior Nursing Technicians and 5) LPN's by waiver. In addition, the nursing in-service education department is also involved in a "co-op" type of on-the-job training program for high school students.

Tables 3 and 4 display data for Cressyda Hospital and show the impact of their involvement with in-service and on-the-job training programs which do not exist at the other four hospitals.

The fact that more NA's (93.0) perform Group 1 functions appears to release a greater percentage of RN's (86.0) to perform more sophisticated functions (Table 3).

Apparently the Senior Nursing Technicians, Nursing Technicians, Senior Nursing Assistants and Nursing Assistants make a logical progression during their in-service training, in that a greater percentage of performers spend increasing amounts of time on more sophisticated functions as they proceed through the levels of training (Table 4).

2. Marginal Medical Functions

We have developed the list of so called "marginal medical functions," composed of those functions which have been traditionally performed by physicians but which can be performed by other health personnel with little training. We used the same format to implement this questionnaire as had been developed for the RPO General Nursing questionnaire. The respondent was asked whether or not he or she performs the function and what percent of the average work week was spent performing this function. We interviewed a sample of the physicians at Adonis Hospital, including Interns, Junior Residents

and Senior Residents with this questionnaire. The RN's employed at Adonis Hospital were also interviewed with the same questionnaire.

We also sought to include in our sample a number of RN's who are nurse practitioners. The Neighborhood Health Centers in Cambridge provide the opportunity to observe the Nurse Practitioner and Pediatric Nurse Practitioner at work. The Neighborhood Health Centers have expanded since they were introduced, and they now provide care to an estimated 30 percent of the pediatric population of Cambridge. The Pediatric Nurse Practitioner has assumed an important role in providing a link with the health care system (see letter to the Editor, Boston Globe, Appendix C). The Nurse Practitioner Program has successfully upgraded the RN while releasing the physician to provide more acute care. (See Appendix D, "Is There a Nurse Practitioner In the House," The Washington Post, Sunday, March 24, 1974. This article is concerned with the Neighborhood Health Centers in Cambridge).

3. Research in Health Manpower Employment

As indicated above, at the end of 1973, we became involved in an additional research project, as an extension of our major work in the utilization of health manpower. This occurred as a result of a meeting in Washington with the staff of the ORD, Manpower Administration. At that meeting the question was raised whether there was any direct evidence of a shortage of health personnel, in view of the growing vacancy rate in hospitals. It was recognized by all that evidence of a "shortage" in the health care industry depended upon the definition of the term; and that it would be impossible to obtain a quick measure of shortage except by some proxy measure. It was finally agreed that changes in employment of health care personnel would give some measure of whether a shortage existed during the period 1968-1973 in the Boston area.

We agreed to perform this additional research, entitled "Health Manpower Employment in Boston and Cambridge -- An Extension

of Research on Improving the Utilization of Health Manpower". The principal objectives of this research are:

a. To determine the changes over a five-year period in the demand for health manpower, by occupational groups, as measured by their employment in the cities of Boston and Cambridge.

b. To determine whether there is an under-utilization of hospital bed capacity, and if so, what effects it has on the employment and utilization of health care personnel.

c. To determine what effects the growth of non-hospital health facilities, such as neighborhood health centers, health maintenance organizations and extended care facilities, has had on the employment and utilization of health care manpower.

To attain these objectives the investigators agreed to obtain relevant information from major employers of health manpower, including 39 hospitals, 44 neighborhood health centers, 127 extended care facilities, and approximately 40 college infirmaries and health maintenance organizations. Statistics and other information would be collected from such secondary sources as the Rate Setting Commission of the Commonwealth of Massachusetts, the Annual Statistics of the American Hospital Association, and the Hospital Administrative Services Program of the American Hospital Association.

We began work on this project in the fall of 1973. We first met with Mr. Edward Donovan, Director of the Rate Setting Commission, Bureau of Hospitals, State of Massachusetts. He offered the full cooperation of his office in allowing us access to the statistics his office collects (HCF-400). He also directed us to Mr. John J. Lennon, Director of the Bureau of Nursing Homes, who promised us the information his office collects (i.e. The Nursing, Convalescent, Charitable Home for Aged and Rest Home Report) for all extended care facilities in Massachusetts.

In our contact with Mr. Donald Jacobs of the Massachusetts

Hospital Association we learned of a project which has been undertaken by the Office of the Secretary for Manpower Affairs of the Commonwealth of Massachusetts. In our meetings with Dr. John Dinklespiel of that office we learned of their progress in collecting health manpower employment data as well as the numerous problems they had encountered.

The Office of Manpower Affairs has developed a manpower questionnaire which was sent to all nursing homes in Massachusetts attached to an annual report required by law which is sent out by the Department of Public Health, Commonwealth of Massachusetts. Because of the auspices, the rate of return for this questionnaire was very high and the data for calendar year 1973 were comprehensive.

Long-term facilities	95% Return
Residential facilities	65% Return
Ambulatory facilities	50% Return
Home Health Agencies	100% Return

The long-term facilities comprise the largestgroup as well as the one with the most reliable information.

We agreed to cooperate with the Office of Manpower Affairs and to tabulate and code their data in return for use of the data in our study.

The Office of Manpower Affairs will also collect similar data from Massachusetts hospitals and we have also agreed to tabulate and code this information. In return we will obtain the data for hospital in Boston and Cambridge for both 1968 and 1973.

We have contacted Mr. William Bonney of the Department of Public Welfare of the Commonwealth of Massachusetts,and Mr. Ernest Henderson, Chairman of the Research and Development Committee of the Massachusetts Federation of Nursing Homes. Mr. Henderson expressed doubt about the availability of nursing home data for earlier years.

We have contacted a number of nursing home owners to determine if data prior to the current year is available. It appears that

such data would be extremely difficult to obtain since many of the nursing homes are relatively new, many of these homes had not kept such records in the past and finally, ownership of these facilities had changed quite often. However, we will continue to pursue other sources for past information, in addition to the statistics we can collect from the Rate Setting Commission, from which we can extrapolate numbers of personnel employed from the dollar amounts spent on nursing and other occupational categories in relation to the average hourly wage.

In addition to this information we will conduct interviews at the 40 hospitals to obtain the numbers of various allied health personnel (approximately 15 different categories) employed in 1968 and 1973.

We have employed five research assistants to tabulate and code the information which was collected by the Department of Public Health. In addition to the manpower data we are also coding some of the utilization statistics contained on the form. We intend to correlate the manpower data with the utilization statistics for each institution, according to the number of beds in each level of care. Level I-II, acute care, provides 24 hour nursing care; Level III provides care for non-acute patients; and Level IV describes custodial care facilities.

From the Annual Report distributed by the Massachusetts Department of Public Health we are currently coding the following statistics:

(1) Number of licensed beds
(2) Number of beds staffed in January 1973
(3) Number of beds staffed in December 1973
(4) Census days for 1973 by level
(5) Number of ambulatory visits
(6) Length of stay distribution, by level of patients discharged in 1973
(7) Number of patients divided by age, sex, and level of care
(8) Number of patients by source of payment
(9) Highest and lowest current weekly rate for those not on Public Assistance

(10) Any planned increase or decrease in facilities or personnel.

4. General Work of the CMMS - Utilization Efforts

The work of the Center involves a wide range of activities, but basically geared to the dissemination of information and reports on health manpower. This dissemination is not limited to research work done at the Center.

a. Conferences, Seminars, Meetings, and Papers

(1) On October 20, 1973, we presented a paper at the plenary session at the 6th Annual Meeting of the Association of Schools of Allied Health Professions entitled, "Health Personnel - Shortage or Surplus". The Association has expressed a strong interest in making our studies available and known to its members. We outlined our past and present research efforts to the 900 member audience with the overallaim of soliciting national interest and support for ORD research efforts in the health fields.

This presentation generated interest among a new group of persons in the health professions -- principally deans and faculty of schools of allied health professions. A revised version of our paper was published in the Journal of Allied Health in the Spring of 1974.

(2) The Center has also made contact with other organizations to present restructuring techniques to hospital administrators and others who have an interest in health manpower utilization. Such a contact has already been made with Dr. E. Martin Egelston of the American Hospital Association. On March 27-29, 1974 we participated in an institute sponsored by the American Hospital Association (AHA) where we presented the findings of the RPO as well as some preliminary findings of our current research. Because of the favorable response to this presentation, it was suggested that a similar presentation be repeated in other areas of the country.

(3) In addition, The Center has received an invitation

as a result of the AHA program. We have agreed to speak at the Personnel Society meeting at the Hospital Association of Pennsylvania 1974 Fall Conference.

(4) At the September 7, 1973 meeting at ORD offices, it was suggested we solicit the assistance of professional associations in support of our research efforts.

In October 1973, Dr. Philip McCarthy, a research associate from the Department of Allied Medical Professions and Services of the American Medical Association, came to our Center to discuss issues of licensing, accreditation and the supply of health workers with the CMMS staff. We discussed in detail our RPO study and our ongoing project. He requested permission to use our studies and the newly created Center for Medical Manpower Studies as reference and source for additional assistance. He indicated his intent to recommend our studies to the New England group of schools of Allied Health at a regional meeting on November 15, 1973. He also expressed a strong interest in our research on "Health Manpower Employment in Boston and Cambridge." Apparently schools of allied health are asking the AMA for assistance in the area of what health manpower personnel should be trained, and more specifically how many health workers in each category should be trained.

(5) "Employment and Utilization of Allied Medical Manpower in Hospitals," Research Report #13, Research Center, Department of Economics, Northeastern University, April 1970.

(6) "More on Profits and Hospitals," Journal of Economic Issues, Volume V, No. 4, December 1971.

(7) "The Economics of the Nation's Health," in The Economist Looks at Society, Xerox Publishing Corporation, Fall 1972.

(8) "Esigenze di lavoro nel campo medico: Ristruttura delle funzioni," I Problemi della Sicurezza Sociale, Rivista dell' Istituto Nazionale per l'Assicurazione Contro le Malattie (INAM), Rome, Winter 1972.

(9) "Problemi Sanitari delle persone anziane negli Stati Uniti," L'ONPI, rivista mensile dell'Opera Nazionale Pensionati d'Italia, Rome, Spring 1973.

(10) "Oppurtunita di lavoro per le persone anziane," L'ONPIrivista mensile dell'Opera Nazionale Pensionati d'Italia, Rome, Summer 1973.

(11) "Profitti negli ospedali privati," Ospedali d'Italia, Organo Ufficiale della Federazione Italiana Associazioni regionali ospedaliere (F.I.A.R.O.) Rome, Spring 1973

(12) "Restructuring Paramedical Occupations," presented before the American Public Health Association, 99th Annual Meeting, October 12, 1971, Minneapolis, Minnesota.

(13) We have received a number of formal and informal requests for permission to use the questionnaires and/or methodology of the RPO study. These requests have been received from hospital administrators, personnel directors, chiefs of various medical services, and other researchers. In all instances we have welcomed the use of our material and have encouraged the user to keep us informed as to its adaptability and usefulness. We have also explained that since our reports were sponsored by the government, they are not copyrighted, and can be reproduced at will.

In addition to the items mentioned above we have made contacts and exhcanged ideas with a large number of specialists in the health field. Several are mentioned below.

(1) Milton I. Roemer, M.D., Professor, and Ruth Roemer, J.D., Researcher in Health Law, Health Services Administration, School of Public Health, University of California, Los Angeles (UCLA). Our discussions centered around measurements of quality and productivity in a hospital environment and international comparisons of health statistics.

(2) E. Martin Egelston Ph.D., Director of Research, American

Hospital Association. Our meetings and phone conversations have been aimed at determining the feasibility of conducting additional institutes for hospital administrators and health personnel around the country and the possible utilization of HAS and AHA computerized statistics as an aide to our ongoing research and measuring the numbers of health employees in various fields in Boston and Cambridge in 1968 and 1973.

(3) Harold C. Wallach, Social Research Consultant with the U.S. Census Bureau. Our meetings were aimed at determining exactly where one could find figures on health manpower for the years 1969-1973.

(4) Phelps Robinson, M.D., McLean Hospital (MGH). Meeting at McLean was aimed at determining the feasibility of establishing training programs for psychiatric personnel so as to design and establish career ladders.

(5) New York Board of Education. Conversation was centered around what medical occupations were not already overpopulated with personnel.

(6) Benjamin Wainfeld M.D., Director of Community Health Services and Ambulatory Care, the Brookdale Hospital Medical Center, Brooklyn, N.Y. Conversation and meetings centered around developing new types of ambulatory centers and creating new occupational categories and new medical care techniques within these centers.

(7) Sally Holloway, Assistant Director, Bureau of Manpower and Education, American Hospital Association. Conversation with Mrs. Holloway centered around in-service training programs at the University of Chicago Hospitals.

(8) Ouida C. Upchurch, Captain, NC, USN, Systems Analysis (Medical), Naval Applications and Analysis Division. Conversations were centered around the methodologies and techniques used in our respective projects. Captain Upchurch is project officer for the

Navy's project entitled, "Job Analysis Techniques for Restructuring Health Manpower Education and Training in the Navy Medical Department."

(9) A working relationship with the United Hospitals of Rome and the Center for Medical Manpower Studies at Northeastern University has been maintained since 1971. During the 1971-1972 academic year Professor Goldstein spent his sabbatical in Rome working with Dr. Elio Guzzanti, at that time, medical director of one of the United Hospitals of Rome -- Ospedale Di S. Spirito in Sassia. Dr. Guzzanti is now medical director of Ospedale S. Camillo. During the summer of 1973 Dr. Guzzanti and Dr. Enzo Lancia (of S. Spirito) at our invitation, spent three weeks in Boston becoming familiar with the American Medical Care System and assisting us with our ongoing project. During the three week period the Italian physicians visited over twenty-five medical facilities in Boston and New York.

In September of 1973 we had a three-day visit in Boston with Dr.Guiseppe Uguccioni, consultant of respiratory diseases and chairman of the Committee of the Consultants of the United Hospitals of Rome. The contacts and assistance we received at the Massachusetts General Hospital proved valuable to both Dr. Uguccioni and our project.

During Professor Goldstein's stay in Rome working relationships were developed with the following groups:

(a). Italian Medical Society

(b). International Red Cross

(c). Instituto italiano di medicina sociale

(d). dell'Istituto Nazionale per l'Assicurazione Contro le Malattie (INAM)

(e). dell'Opera Nazionale Pensionati d'Italia (L'ONPI)

(f). della Federazione Italiana Associazioni Regionali Ospedaliere

(g). The University of Rome Medical School

(i). Istituto Centrale Di Statistica

(j). SVIMEZ, Rome, Italy

(10) As a by-product of our contacts and research at the Boston City Hospital and Dr. Joel J. Alpert, Chairman, Department of Pediatrics at BCH we submitted a joint proposal to NIH entitled, "Computer Applications to Pediatric Care in a Multiple Facility," This proposal has been funded for three years beginning June 1974. We believe this additional research will only strengthen our ties with the Boston City Hospital, our physician consultants and the National Institute of Health. The following is an abstract of this proposal.

> One of the major impediments in providing optimal medical care in an urban setting is the lack of continuity of such care between a central facility and inter-related neighborhood health centers. This is primarly due to poor communication between the various components such as communication of information contained in the medical record of one facility to the other components. While pediatric care presents some unique problems not present in the adult population, solution of multi-location medical record information storage and retrieval appropriate to pediatric care will provide demonstration of techniques suitable to a more general application. The overall objective of our research is to develop a specialized medical record information systems laboratory suitable to a multiple-location facilities environment. Toward that end, a more specific objective is to demonstrate an information system providing better pediatric care by development of a communication network between the pediatric centers at Boston City Hospital and eleven neighborhood centers, which themselves do not provide 24-hour coverage. The particular objectives are to develop a pediatric computerized medical record system which can be accessed by any of the units. Attention will be directed toward development of a pediatric record and information system which is compatible with a dedicated small computer. In addition, the system developed will collect and analyze data for improvement of pediatric care to the overall population. The approach includes identification of the patient problem, computerization of the pediatric medical record,

analysis and optimization of file structure, of access and retrieval and of general data management.

b. Requests for Reports

In order to have some measure of public interest in our reports, and in health manpower in general, we have kept records of all requests for our reports.

(1). As of July 15, 1974, a breakdown of requests for the RPO study was as follows:

Requests received by the Manpower Administration and forwarded to Northeastern University	962
Requests made directly to Northeastern University	992
Copies of RPO sent by Northeastern University to the Manpower Administration for distribution	175
Requests made to N.T.I.S.	388
TOTAL	2517

Many of the requests we have received have been the result of presentations made to professional groups.

The specific sources of these 2517 requests were broken down into the following categories:

Hospital - regular	520
Hospital Associations	41
University Connected Hospital & Medical Centers	57
Medical Schools	55
Schools of Allied Health Professions & Health Administration	184
Other Educational Institutions	172
Medical Associations	9
Medical Specialty Groups	9
Nursing Associations	21
Private Individuals	289
Private Firms	100
Private & Community Agencies	80
Municipal, State and Regional Bodies	270
Federal Agencies	104
Foreign Agencies	43
Sent to M.A. by Northeastern for distribution	175
N.T.I.S.	388
TOTAL	2517

Among the 2517 requests for the RPO study represented are all 50 states, Washington D.C., Puerto Rico, as well as a number of foreign nations, principally Italy, Canada, Japan, Mexico, Australia, Israel and Sweden.

(2). As of July 15, 1974, a breakdown of requests for Hiring Standards for Paramedical Manpower, was as follows:

Requests received by the Manpower Administration.....225

Requests made directly to Northeastern University.....1296

Requests made to N.T.I.S.....77

TOTAL.....1598

Other requests have been made to CMMS for articles as follows:

(3). "Health Personnel - Shortage or Surplus".....273

(4). "Employment and Utilization of Allied Medical Manpower in Hospitals".....425

(5). "More on Profits and Hospitals".....405

(6). "The Economics of the Nation's Health".....367

(7). "Esigenze di lavoro nel campo medico: Ristruttura delle funzioni".....74

(8). "Problemi Sanitari delle persone anziane negli Stati Uniti".....82

(9). "Oppurtunita di lavoro per le persone anziane"...68

(10). "Profitti negli ospedali privati".....76

(11). "Restructuring Paramedical Occupations".....475

We have continued to analyze requests and to compile a current mailing list of all those individuals requesting information from the Center. From our list of requesters,we have been compiling lists of groups of persons having similar interests in receiving our reports and those of others in the health manpower field. We can then provide mailing lists with specific focuses which the Center as well as the Office of Research and Development's Division of R&D can utilize.

c. Brochures and Manuals

Since one of the main goals of our research and of the Center for Medical Manpower Studies is to convince more and more

health facilities to take the necessary steps to improve the utilization of health manpower, the CMMS has undertaken to write two brochures. The first is a brief, layman's account of the research and findings in our earlier studies, as well as of our current research. This is completed and ready for publication. We are now collaborating with a technical writer on a second work: a do-it-yourself manual directed at hospital administrators who are interested in applying the RPO concept by restructuring personnel within their own institutions. Both booklets will be published in the Fall of 1974.

III PLANS FOR THE FUTURE

As indicated above, the staff of the Center for Medical Manpower Studies is involved in a number of interrelated project. While certain activities and research are short-run and will be completed within the next year, others are continuing projects of long-run interest to the Center.

A. Plans for the Immediate Future

The following is a list of activities we will be engaged in during 1974-75.

1. Continue our contacts with hospitals in the area, especially those included in the current project.
2. Continue to coordinate our efforts on our additional work "Health Manpower Employment in Boston and Cambridge" with the state's Office of Manpower Affairs.
3. Continue coding the data for nursing homes from the Department of Public Health questionnaires.
4. Collect information related to our new research work from the Rate Setting Commission of the State of Massachusetts, from the American Hospital Association, and the Hospital Administrative Services Program (HAS) of the American Hospital Association.
5. Begin the interviews with the hospitals in Boston and Cambridge.
6. Prepare the final draft of the do-it-yourself manual with the technical writer.
7. Continue our contacts with the American Hospital Association.
8. Analyze the data from the five cooperating hospitals and prepare a report on findings and recommendations.

B. Long Range Plans

Our long range plans include the following items:

1. A series of studies of health manpower utilization in foreign countries and of lessons to be learned for the United States.
2. Develop techniques for gathering health manpower data for states, regions and nationally on a regualr basis.

3. Continue working with hospitals throughout the nation who express strong interest in restructuring the functions of health personnel.

4. Develop new techniques for disseminating information on restructuring health personnel.

5. Develop measures of evaluation and effectiveness in the utilization of health personnel.

6. Publication of a complete summary of our works in the field of health manpower. A publisher has already expressed interest in such a work.

APPENDIX A

LETTER TO 57 HOSPITALS IN THE BOSTON AREA

NORTHEASTERN UNIVERSITY

BOSTON, MASSACHUSETTS 02115

COLLEGE OF LIBERAL ARTS
DEPARTMENT OF ECONOMICS

August 21, 1972

Dear Sir:

The enclosed paper, "Paramedical Manpower: A Restructuring of Occupations," is being sent to you for your information and reference. This paper summarizes a research project conducted under the auspices of the Manpower Administration of the U.S. Department of Labor during the period from June 1969 to January 1972. A completed report of the study has been published in two volumes entitled, Restructuring Paramedical Occupations.

The project entailed a comprehensive interview and observation study conducted at The Cambridge Hospital. Its principal objectives were:

1. To study and analyze the hiring-in requirements and the duties and functions of paramedical personnel in a single hospital;
2. To recommend changes to restructure occupations and to improve the utilization of manpower in that hospital;
3. To evaluate the successes and failures involved in the implementation of the recommendations;
4. To measure changes in quantity and quality of medical services resulting from the implementation of the recommendations, and to relate changes in service to such factors as changes in hiring-in standards, job duties and functions, and job structure.

Although the recommendations of this project were designed for the needs of The Cambridge Hospital, we believe the findings of the report will be of value to other hospitals with similar or related problems.

A follow-up project to the pilot study at The Cambridge Hospital, also sponsored and financed by the Manpower Administration, has just been launched. This project will involve additional hospitals in the Greater Boston Area. If you are interested in discussing some of the recommendations and issues in your hospital we would be pleased to meet with you at some mutually convenient time. I can be reached at 437-2882.

Sincerely yours,

Harold M. Goldstein
Professor of Economics

HMG/dd

APPENDIX B

DESCRIPTION OF FIVE HOSPITALS
PARTICIPATING IN THIS PROJECT
USING THE NUMERICAL KEY OF THE
AMERICAN HOSPITAL ASSOCIATION
1972 GUIDE

Key to Listing of Hospitals

Classification of Codes

1. Control:

Governmental, non-federal
12-State
13-Country
14-City
15-City-county
16-Hospital district or authority

Nongovernmental not-for-profit
21-Church operated
23-Other

For Profit
31-Individual
32-Partnership
33-Corporation

Government, federal
41-Air Force
42-Army
43-Navy
44-Public Health Service other than 47
45-Veterans Administration
46-Federal other than 41-45, 47-48
47-Public Health Service Indian Service
48-Department of Justice

Osteopathic
61-Church operated
63-Other not-for-profit
64-Other
71-Individual for-profit
72-Partnership for-profit
73-Corporation for-profit

2. Service:

10-General medical & surgical
11-Hospital unit of an institution (prison, hospital, college, infirmary, etc.)
12-Hospital unit within a mental retardation school
22-Psychiatric
33-Tuberculosis and other respiratory diseases
42-Narcotic addiction
44-Maternity
45-Eye, ear, nose, & throat
46-Rehabilitation
47-Orthopedic
48-Chronic disease
49-Other specialty
50-Children's general
51-Children's hospital unit of an institution
52-Children's psychiatric
53-Children's tuberculosis & other respiratory diseases
55-Children's eye, ear, nose, and throat
56-Children's rehabilitation
57-Children's orthopedic
58-Children's chronic disease
59-Children's other specialty
62-Institution for mental retardation
82-Alcoholism

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3. Approvals

1-Accreditation by Joint Commission on Accreditation of Hosp.(1-1-72).
2-Cancer program approved by American College of Surgeons. (1-1-72).
3-Residency approved by American Medical Association
4-Internship approved by American Medical Association. (6-14-71).
5-Medical school affiliation, reported by American Medical Association. (6-14-71).
6-Hospital controlled professional nursing school, reported by National League of Nursing. (10-15-71).
8-Member of Council of Teaching Hospitals of the Assoc. of American Medical Colleges. (3-4-72).
9-Hospital contracting or participating in Blue Cross Plan, reported by Blue Cross Assoc. (3-72).
10-Certified for participation in the Health Insurance for the Aged (Medicare) Program by the Dept. of HEW. (11-71).
11-Accreditation by American Osteopathic Association. (1-72).
12-Internship approved by American Osteopathic Association. (1-72).
13-Residency approved by American Osteopathic Association. (1-72).

4. Stay

S-Short-term - over 50 per cent of all patients admitted stay less than 30 days.
L-Long-term - over 50 per cent of all patients admitted stay 30 days or more.

5. Facilities

1-Post-operative recovery room
2-Intensive care unit
3-Intensive cardiac unit
4-Open-heart surgery facilities
5-Pharmacy with FT registered pharmacist
6-Pharmacy with PT registered pharmacist
7-X-ray therapy
8-Cobalt therapy
9-Radium therapy
10-Diagnostic radioisotope facility
11-Therapeutic radioisotope facility
12-Histopathology laboratory
13-Organ bank
14-Blood bank
15-Electroencephalography
16-Inhalation therapy department
17-Premature nursery
18-Self-care unit
19-Extended care unit
20-Inpatient renal dialysis
21-Outpatient renal dialysis
22-Burn care unit
23-Physical therapy department
24-Occupational therapy department
25-Rehabilitation inpatient unit
26-Rehabilitation outpatient unit
28-Psychiatric outpatient unit
29-Psychiatric partial hospitalization program
30-Psychiatric emergency services
31-Psychiatric foster and/or home care
32-Psychiatric consultation and education services
33-Organized outpatient department
34-Emergency department
36-Family planning service
37-Genetic counseling service
38-Abortion service (inpatient)
39-Abortion service (outpatient)
40-Home care department
41-Hospital auxiliary
42-Volunteer services department

The data for the following five hospitals is for the year 1972.

1. Adonis Hospital - a short-term, municipal teaching hospital.

This hospital is associated with one medical school.

Classification Codes: Control, 14; Service, 10; Stay, S.
In-Patient Data: Beds, 809; Admissions, 21,812; Census, 630;
Occupancy (percent), 76.0.
Newborn Data: Bassinets, 57; Births, 2,239.
Expense: (thousands of dollars) Total, 45,629; Payroll, 31,372.
Personnel: 3,669.
Approvals: 1, 2, 3, 4, 5, 6, 9, 10.
Facilities: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 23, 24, 26, 28, 29, 30, 32, 33, 34, 35, 36, 38, 49, 41, 42.

The service participating in the project has approximately 60 beds.

2. Bacchus Hospital - a short-term, private, non-profit teaching hospital. This hospital is associated with one medical school. The entire hospital will participate in our project.

Classification Codes: Control, 23; Service, 10; Stay, S.
In-Patient Data: Beds, 309; Admissions, 8,779; Census, 241;
Occupancy (percent), 78.0.
Newborn Data: Bassinets, 30; Births, 1,249.
Expense (thousands of dollars): Total, 12,569; Payroll, 7,463.
Personnel: 886.
Approvals: 1, 3, 4, 5, 6, 9, 10.
Facilities: 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15, 16, 17, 23, 26, 33, 34, 41, 42.

3. Cressyda Hospital - a short-term, private, non-profit hospital. This hospital is in a rural setting and serves a large, sparsely-populated geographical area.

Classification Codes: Control, 23; Service, 10; Stay, S.
In-Patient Data: Beds, 322; Admissions, 8,773; Census, 234
Occupancy (percent), 71.8.
Newborn Data: Bassinets, 21; Births, 849.
Expense (thousands of dollars): Total, 6,591; Payroll, 4,451.

Personnel: 749.
Approvals: 1, 2, 3, 6, 9, 10.
Facilities: 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 14, 16, 17, 19, 23, 27, 33, 34, 35, 41, 42.

4. Desdemona Hospital - a small, short-term, private, non-profit hospital.

Classification Codes: Control, 23; Service, 10; Stay, S.
In-Patient Data: Beds, 75; Admissions, 2,108; Census, 64; Occupancy (percent), 85.3.
Newborn Data: Bassinets,--; Births,--.
Expense (thousands of dollars): Total, 2,317; Payroll, 1,436.
Personnel: 178.
Approvals: 1, 9, 10.
Facilities: 1, 5, 14, 16, 23, 24, 33, 34, 41, 42.

5. Elektra Hospital - a short-term, municipal teaching hospital. This hospital is associated with one medical school.

Classification Codes: Control, 14; Service, 10; Stay, S.
In-Patient Data: Beds, 187; Admission, 5,745; Census, 139; Occupancy (percent), 74.3.
Newborn Data: Bassinets, 15; Births, 986.
Expense (thousands of dollars): Total, 7,485; Payroll, 4,803.
Personnel: 539.
Approvals: 1, 2, 3, 4, 5, 9, 10.
Facilities: 1, 2, 5, 14, 15, 16, 17, 23, 27, 28, 29, 30, 32, 33, 34, 35, 41, 42.

APPENDIX C

LETTER TO THE EDITOR OF THE BOSTON GLOBE FROM THOMAS F. SULLIVAN, ASSISTANT REGIONAL DIRECTOR OF HEALTH, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, REGION I

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
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BOSTON, MASSACHUSETTS 02203

OFFICE OF
THE REGIONAL DIRECTOR

March 28, 1973

Editor
Boston Globe
Boston, Mass. 02107

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Dear Sir:

I am writing in reference to your editorial "Care For Aching Backs" in your edition of Monday, March 19, 1973. It is unfortunate that while describing some very basic problems in health care delivery and some responses to those problems, you did not mention one of the most successful and innovative pediatric screening, diagnostic and treatment programs in the country.

The program to which I refer is directed by Philip Porter, M.D., Chief of Pediatrics at Cambridge Hospital. The program was instituted in 1968 with the opening of one neighborhood health center in a local housing project. Since then four other centers have been opened in the community schools of Cambridge.

The neighborhood health centers were placed in the schools in order to assure ready access to those large population groups known to be most in need of these services, to promote nurse-teacher communication, and to reduce costs by the use of existing facilities. The health centers are presently staffed by 11 nurse practitioners and 2 community aides. They practice in groups following a detailed protocol and are closely supervised by Dr. Porter and his Assistant, Dr. Leibel.

The health center system, utilizing nurse practitioners as the basic source of health care delivery, has steadily expanded the scope of its services so that a wide variety of interrelated programs are available.

These programs are designed to insure that each child from birth through age 16 receives all appropriate medical and psychological attention.

Specifically, there are three aspects to the neighborhood care system and the services it provides. First, the nurse practitioners provide all well child care and maternal counseling. To insure continuity, each child is seen by the same nurse practitioner at each visit and each child is periodically evaluated by Dr. Porter or Dr. Leibel.

Second, the nurse practitioners also function as community health nurses and have responsibility for outreach and recruitment through home,

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school and day care center visiting. If an infant is born at Cambridge Hospital, the mother is visited there by the nurse practitioner who then follows the child at the neighborhood center. If an infant is born outside Cambridge, a home visit is made as soon as the birth certificate is registered in Cambridge. In addition, the practitioners review all pediatric Emergency Room visits on a daily basis in order to follow up by a personal visit or a telephone call to insure that the medical condition is improving. In this way the practitioners develop an understanding and ability to handle social and family problems. They also begin to educate the family about the proper utilization of available health care resources. The nurse practitioners are particularly involved, through nurse-teacher conferences, in the early detection and referral of children who have classroom adjustment problems.

Finally, the neighborhood health centers offer locally based, readily accessible care for the common acute medical afflictions of childhood. The nurse practitioners provide treatment in the health centers for those conditions which had previously constituted the bulk of Cambridge Hospital's pediatric emergency ward load.

The results of this program are extremely significant. At the present time, the program serves 30% of the pediatric population of Cambridge and more than 50% of the pediatric population in the 5 target areas in which the health centers are located. The program serves [illegible]% of the school population in the Model Cities area of Cambridge. During 1972, the program provided services for more than 18,000 patient visits. In 1972, the nurse practitioner conducted more than 1,300 nurse-teacher conferences. Perhaps more significant than any of these figures is the change in the utilization pattern which emerges from a review of the program's patient records. Children, who prior to their contact with the health centers, were brought to the Cambridge Hospital emergency room for cut fingers and minor colds, after coming into contact with this program, seldom utilized the expensive hospital emergency room services. Younger siblings of the same children who we might expect to show the same high level of utilization of the emergency room never do show up in the emergency room because their family has been brought into a more appropriate and effective health care system. Such results are very significant both in terms of patient care and economy in the delivery of health care. These results have been achieved at an annual direct cost of $44 per child served.

What I find most interesting in looking at the Cambridge Neighborhood Health Center Program is that it has been developed without any Federal or State support. In fact, it has been developed without additional expenditure of any city funds. Dr. Porter, beginning approximately

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7 years ago, converted a school health program with 17 school nurses into this extremely significant health maintenance system for Cambridge children. Starting with these 17 school nurses, he has gradually retrained some and replaced those who retire so that there are now 5 school nurses and 12 nurse practitioners. In this way, the initiation of this program has been possible without additional cost to the city. In fact, it has resulted in budgetary savings since contracted physician services which were formerly a part of the school health program have been gradually phased out as the physicians have retired. These savings have been realized at a time when the number of patients served has increased dramatically and the comprehensiveness of the program has been greatly expanded.

I apologize for the length of this letter. However, I believe the accomplishments of the program described are extremely significant both for the City of Cambridge and for public policy considerations. Dr. Porter's accomplishments suggests that with a redirection and refocusing of some of the resources currently available within the health care system, a significant expansion of services and an improvement in health care delivery is possible.

Very truly yours,

Thomas F. Sullivan

Thomas F. Sullivan
Assistant Regional Director for Health

APPENDIX D

"IS THERE A NURSE PRACTITIONER IN THE HOUSE," THE WASHINGTON POST, SUNDAY, MARCH 24, 1974

C2 Sunday, March 24, 1974 THE WASHINGTON POST

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Is There a Nurse Practitioner In the House?

By Daniel Zwerdling

Zwerdling is a freelancer who frequently writes on consumer and medical subjects.

CAMBRIDGE, MASS.—The examining and waiting rooms in the Putnam Avenue pediatric clinic have been busy all day. The patients include an 18-month-old baby getting a routine physical, three children with strep and three others with runny colds and sore throats.

But no doctors hold office hours in this clinic in the Martin Luther King Jr. grade school. For these patients, and indeed for one-third of all children in Cambridge, a visit to the family "doctor" usually means a visit to the neighborhood nurse—a specially trained pediatric "nurse practitioner."

The Cambridge program is part of a growing trend in American medicine: relying on non-physicians like nurse practitioners to provide primary health care — physical checkups, basic tests, inoculations, in some cases treatment with prescription drugs — and thus freeing scarce physicians to concentrate on patients with serious illnesses.

The practice stems from the assumption that a major share of many physicians' traditional work, once considered sacrosanct, doesn't require all those years of medical school and internship. One time-motion study published in the New England Journal of Medicine, for example, discovered that pediatricians typically devote half their time to examining essentially healthy children: weighing and measuring, evaluating physical and mental growth, giving routine checkups and treating common ailments. A fifth of the pediatrician's time with sick patients, the study also found, is consumed by minor upper respiratory infections like bronchitis and strep, which call for standard treatments.

"You don't have to go through four years of college and four years of medical school and three years of internship and residency to do that," says a pediatrician at Cambridge Hospital. "Any intelligent person with a high school education and some special training could do just as well." In fact, [illegible] to routine cases and provide better care. "When we have to do all this routine work ourselves," the Cambridge pediatrician says, "we get sloppy with the patients and miss things just because we get so bored seeing so many of them."

Continued Resistance

SUCH SENTIMENTS, combined with the general drive to improve health care and fight crippling medical costs, are contributing to the rise of the non-physician healer.

Nurse practitioners function virtually as family doctors in rural Indian communities in New Mexico, in the small logging town of Darrington, Wash.—where the closest physician is 30 miles away—and among the 15,000 mostly impoverished people living in the hollows of Leslie County, Ky. They are also helping to improve health care systems in a number of urban areas. In Denver, where the University of Colorado founded the nation's first pediatric nurse practitioner program seven years ago, practitioners serve in 12 health stations, mostly in low-income housing. In Seattle, nurse practitioners are giving primary medical care to elderly residents of low-income apartment complexes and to the poor in the inner city.

In a number of health maintenance organizations, or HMOs, such as Boston's Harvard Community Health Plan and another in Washington's George Washington University medical center, nurse practitioners team up with physicians and share much of their routine caseload. And in one of the most notable developments in HMOs, the Washington area's Group Health Association designed a new suburban clinic in Rockville, Md., around the nurse practitioner concept. General nurse practitioners there examine every patient first and provide most of the primary medical care. They call a pediatrician, gynecologist or internist near the end of each medical exam for consultation and specialty work.

The health care industry's response, so far to the concept of relying more on non-physicians has been mixed. Many have been lending support, if only gradually. A special Health, Education and Welfare Department task force recommended in November, 1971, that nurse practitioners move into primary health care, and HEW has been funding nurse practitioner training programs at a number of universities. The American Medical Association has even cosponsored several conferences with the American Nurses' Association to promote the idea of the "health care team" of physicians, nurse practitioners and other health aides.

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But resistance remains strong, and it will likely take many years before nurse practitioners and other non-physicians are allowed to assume any significant share of primary health care in America.

Dr. Sanford A. Marcus, president of the fledgling and conservative Union of American Physicians, wrote recently in American Medical News: "It is time to serve notice that the 'health care team' consists only of the physician and his patient. While others may serve as water boy or perform other support functions, it is high time that we disabuse them of the notion that they have any more than an advisory capacity in the determination of what our patients need."

Prescribing Drugs

THE CAMBRIDGE pediatric program, however, makes clear that nurse practitioners can be anything but "water boys." Although three back-up pediatricians examine children with serious or complicated illnesses and consult with patients periodically, the 12 nurse practitioners at the seven clinics in this six-year-old program provide virtually all primary medical care. "The nurses," says Dr. Philip Porter, director of the program, "give the children everything you'd get if you were going to a private pediatrician."

This is evident when watching Lil Chenell, one of three practitioners at a Cambridge clinic, taking care of a little boy whom she's tentatively diagnosed as having a strep infection. "He's been sick for four days now and the lab results won't come back for three," she says, "and I don't want to wait to treat." So, in one of the most significant developments in the Cambridge clinics and others, Mrs. Chenell decides to treat the child on her own — there's no doctor at the clinic — with a prescription dose of penicillin.

The nurses' power to diagnose and treat patients on their own, using prescription blanks signed in advance by a physician, suggests how much some doctors are delegating once sacred physicians' work. Every clinic that relies on nurse practitioners delegates power differently; in the Denver health stations and at Washington's Group Health Association, for example, the nurses must refer every sick patient to a doctor. This time, nurse practitioner Chenell has to check with a doctor by phone before giving the boy penicillin, because without the lab results she can't diagnose a strep for sure. But for the majority of sick children at the Cambridge clinics, the diagnosis and prescribed treatment seldom go beyond the nurse practitioner's door.

"Delicate" and "Touchy"

SOME DOCTORS HAVE been letting nurses dispense pre-signed prescriptions for years, though patients have not been aware of this, and Washington State has a new law permitting nurses to prescribe certain drugs on their own. But today's open independence among many nurse practitioners is still quite new — and, doctors hasten to add, "delicate" and "touchy." Dr. Porter stresses that Cambridge practitioners may treat only minor upper respiratory infections and skin problems with prescription drugs, and then only according to a rigidly defined protocol.

When doctors sign their names to prescription blanks and hand them to the practitioner, they clearly are putting their medical careers on the line. "I'm willing to do that," says Dr. Rudolph Leibel, assistant director of pediatrics at Cambridge Hospital. "I know they'll do a good job. These nurses are absolutely as good as any pediatrician in terms of diagnosing respiratory tract and skin disorders; as good as any pediatrician in picking up orthopedic disorders. Some of the nurses in my clinic have picked up abnormalities that I'm sure I could not have picked up, simply because I was so bored seeing so many of them [patients]. One nurse picked up such a small deviation — so minor that even the orthopedic specialist had to look twice — and of course the nurse was right: The kid had early scoliosis, curvature of the back."

Nurse practitioners usually can't diagnose complicated disorders, of course, but, as Leibel says, "They aren't paid and trained to tell us what is wrong; they're trained and paid to tell us that *something* is wrong." That's when the physicians take over, and that's why the nurse practitioner system is helping make health care delivery more efficient.

"A Friend, a Counselor"

THE CAMBRIDGE SYSTEM certainly wasn't so efficient when Dr. Porter became chief of pediatrics at Cambridge Hospital in 1965. He discovered, for example, that low-income families were bringing kids with bad colds and sore throats to the emergency room because they had no place else to go, a familiar pattern at many hospital emergency rooms. (At Washington's George Washington Hospital up to 35 per cent of emergency room patients reportedly come for minor ailments.)

Cambridge families didn't lack adequate pediatric care because the city couldn't afford it. "There was plenty of funding for health care in the public sector," Dr. Porter says, "but it was poorly allocated."

So the city centralized all child care programs under Dr. Porter's department, and Porter blueprinted health care suites into three schools under construction in low-income neighborhoods, dusted off an old nurse's suite gone to storage in a fourth, and rented a neighborhood apartment. But his most important decision was to base the clinics on nurse practitioners, not doctors.

The city, it was clear, would never come up with funds to pay the going doctors' rates, and it would never find good doctors willing to work fulltime for less. But beyond economic constrictions, Dr. Porter insists, nurse practitioners weren't a second-rate compromise.

"So much of the quality of pediatric care depends on the relationship between the patient and parents and physician," he says. "We needed a familiar face who knew the social and economic climate of the family, who had a strong relationship with the mother and father—someone who could visit the home, be a friend, a counselor, a supporter of the mother."

This crucial component of medicine is often neglected in modern health care. As Barbara Bates of the University of Rochester Medical School reports, studies have shown that physicians are usually more comfortable providing diagnoses and drugs than trust and understanding. But trust and understanding are much of what the traditional nurse's role has been about.

"The Old Family Doctor"

"WE FUNCTION like the old-family doctor who knew the whole family and its problems," says Peggy Barnes, a nurse practitioner at Cambridge's Putnam Avenue clinic. The nurses say they visit the home of virtually every newborn baby of Cambridge residents and make home visits when serious problems arise. They get to know parents and brother and sisters as they grow through the school system and learn from teachers about problems children may be having in school.

"The parents know us, they'll talk to us, bring out problems that perhaps they'd be reluctant to discuss with a doctor," says Mrs. Barnes. "You know that old mystique of 'Oh, the doctor is so busy I don't want to bother him with this little thing'? They're not afraid with us. They feel we have time to talk."

Cambridge nurses sometimes encourage a woman to vent her feelings about her husband, help another sort out ambivalent feelings about abortion, visit the homes and support parents whose babies succumbed to sudden infant death.

"We have five families who come to this clinic who we're really close to," says nurse practitioner Nancy Compton, "and we help them cope. One woman's mother is dying of cancer. She comes in and we talk about it, how she feels, her thoughts. Nothing dramatic like you see on TV. It's just support."

Today, six years since the first clinic opened, the Cambridge system handles at least 25,000 patient visits a year. More than 6,000 children—mostly from low-income families but others from graduate students' and professors' families, too—use the nurse practioners as they would a family doctor. The city pays the 12 nurse practitioners, RNs who are graduated from a special four-month course at Northeastern University, out of the same budget with which it paid 12 old-style school nurses who retired. It's a model of comprehensive health care provided free to the public, at no extra cost to the city.

Clinics in Boston, or Cambridge, or Washington, or Denver or Seattle haven't found a panacea for health care delivery problems. But they do suggest a strategy which could help the medical industry go a long way toward improving the quality of health care and making it more efficient and more personal.

"There's no reason in the world," Dr. Porter says, "why every city in the country couldn't do what we're doing here."

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